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HEALTH EFFECTS OF THE MID-LIFE YEARS AMONG NAVY ENLISTED MEN

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REPORT NO. 81-25

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Health Effects of the Mid-Life Years among Navy Enlisted Men*

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Report Number 81-25, supported by Naval Medical Research and Development Command,
Bethesda, Maryland, Department of the Navy, under Research Work Unit M0099-PN,001-1163.

The views presented in this paper are those of the author.

No endorsement by the Department of the Navy has been given or should be inferred.

*From the Environmental Medicine Department.

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Summary

Problem

Levinson and his associates postulate that between the ages of 38 and 43 every man experiences the beginning of the mid-life transition during which issues to be faced center on changes concerned with his career, family, and thoughts about himself. Feelings of ambivalence about his career may be experienced, which, if resolved unsatisfactorily, can result in ill health or an untimely death. For Navy personnel, the decision must be made as to whether or not to leave the service after 20 years of active duty. The process of dealing with these issues as well as the stressors associated with one's occupation, life style, or family life can have an impact on the individual's health and well-being.

Objective

The purpose of this study is: (1) to compare the overall hospitalization rates of Navy enlisted men during a second and third decade of a career, (2) to identify high-risk occupational groups, and (3) to identify the health problems that are manifest during the mid-life transition years.

Approach

The participants for this study included all Navy enlisted male Caucasians who began active service during 1955 to 1956 (N = 30,393) or 1945 to 1947 (N = 19,471) and who remained on active duty for any time period after January 1966. By selecting these time frames, the two cohort groups provide observations in the second and third decades of a Navy career in that the time period for this examination of health risks is from January 1966 through December 1976. Data extracted from the hospitalization records, which are made available to NHRC by the Data Services Center in Bethesda, include primary diagnosis, occupation, date of hospitalization, active duty status or type of separation, and date of separation. Using the primary diagnosis of all hospitalizations that occurred during the 1966 to 1976 time period, hospitalization rates per 100,000 men for the 16 major diagnostic categories were computed for both cohorts and for each of 13 occupational groups.

Results

Comparisons between cohorts show that third decade enlistees have considerably higher hospitalization rates than the second decade cohort for 10 of the 16 major diagnostic categories. The largest differences are observed for the categories of Endocrine, Metabolic, and Nutritional Diseases (5:1), Diseases of the Circulatory System (4.2:1), Supplementary Classifications (2.9:1), and Diseases of the Digestive System (2.7:1). The highest rates for men in their third decade of a career include the classifications of Diseases of the Digestive System; Diseases of the Circulatory System; and Accidents, Poisonings, and Violence. The difference in rates between the two highest ranked categories and all other classifications is substantial, which reflects the elevated risk for digestive and circulatory problems among men during the years of the third decade of the mid-transition years. Specific diseases with the highest rates during the mid-life years are ulcers, hypertension, ischemic heart disease, hernias, arthritis, pneumonias, bronchitis, hearing loss, and diabetes mellitus. For the younger cohort, the highest rates are noted for Accidents, Poisonings, and Violence; Diseases of the Digestive System, and Mental Disorders.

The occupational groups with the highest hospitalization rates for the third decade cohort include Hospital Corpsman, Construction/Manufacturing, and Engineering/Hull. For the second decade, the high risk occupational groups are Hospital Corpsman, Mess Management Specialist, and Deck. The lowest health risk groups for both decades include Administrative/Clerical, Miscellaneous/Technical, Electronics, and Communications.

Explanations for these differences among occupational groups pertain to the stressors associated with the occupation (e.g., Hospital Corpsmen have responsibility for the lives or well-being of patients) or the environmental conditions under which the jobs are performed. For example, when compared with the high-risk groups noted above, all of the tasks assigned to personnel in the Administrative/Clerical, Miscellaneous/Technical, Electronics, and Communications occupations require less physical strength and stamina and would be performed in environmentally protected work settings. Many specialties in these

groups, moreover, have a high transferability to civilian jobs and a correspondingly high demand in the job market, factors that would enhance an enlistee's self-esteem and well-being.

Conclusion

Such results indicate that for many men the years of the mid-life transition are the beginning of a period when health problems require increased attention and consideration. Although many researchers would be tempted to attribute this elevated health risk to the "normal aging process," it should be pointed out that the human lifespan consists of a series of developmental phases which typically are devoid of disease. Chronic health problems are acquired conditions that in all likelihood are genetically predisposed, life-style promoted, or environmentally or occupationally induced. The challenge for the Navy Medical Department will be to develop and implement programs of risk reduction, such as dietary, weight-reduction, smoking cessation, and physical fitness programs.

Since the publication of The Seasons of a Man's Life by Levinson and his associates¹ and Passages by Sheehy,² the reading public has become increasingly interested in learning about the various developmental periods of an individual's life. This fascinating topic, however, is not a new one, a fact that probably could be deduced by even the most naive student. Dating back 2,500 years, philosophers studied, pondered, and labeled various phases of an individual's life, the transitions that each of us experience from birth to death.

In comparing the early philosophers (e.g., Confucius) with latter-day thinkers such as Erickson³ and Levinson,⁴ a similarity is evidenced in that individuals progress through between seven and ten developmental phases, each of which occurs within prescribed age intervals. Levinson and his associates, for example, postulate that between the ages of 38 and 43 every man experiences the beginning of the mid-life transition during which issues to be resolved center on changes concerned with his career, family, and feelings about himself. A man in this transition is beset with concerns about both his past achievements and his future directions. With regard to specific career considerations, Murphy and Burck⁵ observe that most individuals attain their highest career positions during their 40s and feel the pressures of early retirement. Individuals then begin to engage in considerable reevaluation of their careers which often can lead to a renewal phase and the subsequent establishment of another career. During this process, feelings of ambivalence about their careers may be experienced, which, if resolved unsatisfactorily, can result in ill health or an untimely death.⁶ Sources of stress associated with one's occupation or career also can exact a toll on the health and well-being of individuals at this stage in life, especially if they have been on the job for a number of years. Thus, for many men, this life phase is the beginning of a period of physical decline with health and illness demanding increased attention and awareness.

For military career personnel, these issues of the mid-life transition years require making decisions that not only are difficult but ones that must be made immediately. In contrast, most civilians can progress through this phase without overtly dealing with all of the aforementioned considerations. One example of the greater pressure felt by Navy men and women is that they must face the difficult decision of whether or not to leave the Navy after 20 years of active duty. Factors influencing the decision to stay include the achievement of a senior and responsible position, the enjoyment of a military life style, and the fellowship of military friends. These positive aspects of the military are then countered with such positive facets of civilian life as the opportunity to earn higher wages (augmented by military retirement pay) or to receive retirement benefits and enjoy the freedom of not having to work as well as to assume a stable family life without a succession of relocations. Other concerns relate to health status in that many career personnel have suffered illnesses or injuries which could prevent a continuation of active service beyond 20 years.⁷

The process of dealing with these issues or resolving the conflicts associated with such considerations could have an impact on the health and well-being of military personnel. Because there has been no recent longitudinal research reported on this health-related topic, the question posed for this study is: What are the health problems that are manifest during the years of the mid-life transition? The purpose of this article is to report the similarities and differences in hospitalization rates among active duty Navy enlisted men during the second and third decades of a Navy career (the latter period includes the years of the mid-life transition).

This report is the second segment of a two-part project designed to identify the illness patterns of enlisted men by occupation during various phases of a Navy career. In the first article, hospitalization rates for 10 stress-related illnesses are shown to increase as much as tenfold from the first enlistment to the third decade of a career.⁸ The specific concerns of this second study are: (1) to compare the overall hospitalization rates of Navy enlisted men during a second and third decade of a career, (2) to identify high-risk occupational groups, and (3) to identify the health problems that are manifest during the mid-life transition years. Results of this project could be used by the Navy Medical Department as the basis for the

develops of intervention and preventive health care programs. With the implementation of effective health maintenance programs, the high costs of human suffering, health care services, and retirement disability compensation would be reduced.

Navy Data Systems: The information for this project was extracted from the computer file of hospitalization records, medical board actions, and death records which is maintained at the Naval Health Research Center in San Diego. The data on this computer file are obtained annually from the Navy Medical Data Services Center, Bethesda, Maryland, and are added to existing individual records or new records are created for individuals with no previous records. A computer file of service history information, made available by the Navy Personnel Research and Development Center, also has been compiled at the Naval Health Research Center to complement the medical history file. These two master files contain the medical inpatient histories and service histories of all enlisted men and women who served on active duty since July 1965.

The participants in this study included all Navy enlisted male Caucasians who began active service during 1955 to 1956 ($N = 30,393$) or 1945 to 1947 ($N = 19,471$) and who remained on active duty for any time period after January 1966. By selecting these time frames, the two cohort groups provide observations in the second and third decades of a Navy career in that the time period for this examination of health risks is from January 1966 through December 1976. With data bases dating from the near-present back to July 1965, therefore, it is possible to design and conduct longitudinal studies which can answer medical questions for all Navy personnel as well as specific subgroups of that population.

After extracting the records for the two cohorts from the medical history and service history files, a composite file was created that contains the following information: primary diagnosis for each hospitalization, occupation at the time of hospitalization or the last service history entry, date of hospital admission, active duty status or type of separation, and date of separation or retirement from active duty.

Using the primary diagnoses for all hospitalizations that occurred during the specified 1966 through 1976 time period, hospitalization rates per 100,000 men for all diagnostic categories were computed for both cohorts and for each of 13 occupational groups within the two cohorts. These occupational groups included: Deck and Aviation-related jobs, Ordnance, Electronics, Communications, Administrative/Clerical, Mess Management Specialist, Service, Engineering/Hull, Electrical, Aviation (mechanics), Construction/Manufacturing, Hospital Corpsman, and Miscellaneous/Technical. Examples of specific occupations in the latter group were Data Processor, Musician, and Dental Technician. The population at risk for the cohorts and each occupational group was obtained by computing the average number of men on active duty for each year from 1966 through 1976 and then summing these values across the 11 years.

Comparisons of Rates between Cohorts: Table 1 is a presentation of hospitalization rates by major diagnostic category for each cohort. The consistently higher rates for the 1945-1947 cohort can be seen quite readily for each category in the column of ratios. The largest differences between cohorts are observed for the categories of Endocrine, Metabolic, and Nutritional Diseases (5:1), Diseases of the Circulatory System (4.2:1), Supplementary Classifications (2.9:1), and Diseases of the Digestive System (2.7:1). Differences in rates between cohorts are the smallest (1.3:1) for the categories of Accidents, Poisoning, and Violence; Mental Disorders; Diseases of the Skin, and Infective and Parasitic Diseases. The highest rates for the 1945-1947 cohort include the following classifications: Diseases of the Digestive System; Diseases of the Circulatory System, and Accidents, Poisoning, and Violence. The difference in rates between the two highest-ranked categories and the other diagnostic classifications is substantial, which reflects the elevated risk for digestive and circulatory problems among men during the years of the third decade or the mid-life transition years. The categories with the highest rates for the younger cohort are Accidents, Poisoning, and Violence; Diseases of the Digestive System, and Mental Disorders. For approximately half of the other categories, the variability among rates is minimal for this cohort.

Although it is beyond the scope of this article to discuss in detail the data from the 1966 cohort (the first decade population), a brief summary is included to provide some baseline information. Across the three decade groups, overall rates of hospitalizations show a corresponding increase with years of service or age. However, in comparing hospitalization rates of

the men who enlisted in 1966 with those serving in their second decade of active duty, only slight increases in rates are noted for half of the 16 diagnostic categories whereas a slight decrease is evidenced for the categories of Infective and Parasitic Diseases and Diseases of the Skin and Subcutaneous Tissue. The largest differences in rates between the first and second decades are for Diseases of the Circulatory System and Diseases of the Digestive System although the ratios computed for the second and third decades are considerably greater. In general, the differences in rates for almost all categories across the three cohorts are larger for the comparisons between the second and third decade cohorts than between the first and second decades.

Table 1
Hospitalization Rates and Ratios Rank-Ordered by Diagnostic Category for
Navy Enlisted Men Who Entered Service in 1945-47 and 1955-56^a

<u>Diagnostic Category (ICDA-8)</u>	<u>Rates</u>		<u>Ratio</u>
	<u>1945-47 Cohort</u>	<u>1955-56 Cohort</u>	<u>1945-47 1955-56</u>
Diseases of the Digestive System	3,836	1,408	2.7:1
Diseases of the Circulatory System	3,117	738	4.2:1
Accidents, Poisoning, Violence	2,084	1,641	1.3:1
Diseases of the Musculoskeletal System	2,024	874	2.3:1
Diseases of the Respiratory System	1,827	959	1.9:1
Mental Disorders	1,414	1,110	1.3:1
Symptom and Ill-defined Conditions	1,362	582	2.3:1
Supplementary Classifications	1,262	428	2.9:1
Diseases of the Nervous System and Sense Organs	1,177	457	2.6:1
Endocrine, Nutritional, and Metabolic Diseases	1,095	218	5.0:1
Diseases of the Genitourinary System	1,038	698	1.5:1
Neoplasms	702	298	2.4:1
Diseases of the Skin and Subcutaneous Tissue	595	464	1.3:1
Infective and Parasitic Diseases	530	401	1.3:1
Congenital Anomalies	234	92	2.5:1
Diseases of the Blood and Blood-forming Organs	57	26	2.2:1
Total Hospitalization Rate	22,354	10,384	2.2:1

^aHospitalization rate is the number of admissions per 100,000 strength per annum for 1966-1976.

Occupational Comparisons of Rates: In Table 2, the hospitalization rates for the major diagnostic categories are presented by occupational groups for the 1945-1947 cohort. The diagnostic categories and occupational groups have been rank-ordered from the lowest to highest total rates. The highest overall rates are observed for the groups of Hospital Corpsman, Construction/Manufacturing, and Engineering/Hull whereas the lowest rates are noted for Administrative/Clerical, Electronics, and Miscellaneous/Technical. Hospitalization rates across occupations vary markedly for nearly all of the 16 categories.

Table 3 is a presentation of hospitalization rates for the 16 diagnostic categories by occupational groups for the 1955-1956 cohort. The ordering of categories and occupations corresponds with those in Table 2 which enables the reader to more easily compare rates between cohorts. Hospital Corpsmen and Mess Management Specialists have the highest overall hospitalization rates as well as the highest rates for Diseases of the Digestive System, Diseases of the Musculoskeletal System, Mental Disorders, and Symptoms and Ill-defined Conditions. The other groups with elevated rates (Deck and Engineering/Hull) have

Table 2

Hospitalization Rates Rank-Ordered by Diagnostic Category and Occupational Group for
Navy Enlisted Men Who Entered Service in 1945-1947^a

Diagnostic Category (ICDA-8)	Occupational Group ^b					
	1	2	3	4	5	6
Diseases of the Digestive System	2762	3339	4089	3763	3175	4524
Diseases of the Circulatory System	2263	2588	2634	3049	2969	2643
Accidents, Poisoning, Violence	1684	1698	1140	1978	2352	2002
Diseases of the Musculoskeletal System	1315	1892	1691	1511	1999	1602
Diseases of the Respiratory System	1473	1781	1730	1566	2734	1081
Mental Disorders	1500	807	786	1483	1382	2042
Symptoms and Ill-defined Conditions	1105	974	1297	961	1264	1522
Supplementary Classifications	868	1030	786	1346	1000	1161
Diseases of the Nervous System and Sense Organs	789	751	1062	1236	1029	1682
Endocrine, Nutritional, and Metabolic Diseases	1105	1088	826	934	735	1361
Diseases of Genitourinary System	1052	1113	1219	687	1058	761
Neoplasms	500	863	629	549	706	721
Diseases of the Skin and Subcutaneous Tissue	316	278	668	522	617	360
Infective and Parasitic Diseases	263	473	511	494	382	240
Congenital Anomalies	237	139	79	85	206	40
Diseases of the Blood and Blood-forming Organs	53	84	35	0	29	0
Total Hospitalization Rate	17225	18868	19186	20134	21637	21742

Diagnostic Category (ICDA-8)	Occupational Group						
	7	8	9	10	11	12	13
Diseases of the Digestive System	3805	4042	3532	5079	3989	3344	4604
Diseases of the Circulatory System	3991	3131	4029	2941	3676	4125	3407
Accidents, Poisoning, Violence	1578	2898	2263	1753	2500	2699	1980
Diseases of the Musculoskeletal System	2042	2570	2870	1693	2347	2954	2440
Diseases of the Respiratory System	1949	1589	2097	1960	1858	2676	1657
Mental Disorders	1578	1262	1214	1604	1291	1840	2164
Symptoms and Ill-defined Conditions	1392	1355	1435	1426	1564	1895	2072
Supplementary Classifications	1670	1262	1104	1574	1760	1338	1289
Diseases of the Nervous System and Sense Organs	742	841	1490	1099	1701	1616	1611
Endocrine, Nutritional, and Metabolic Diseases	1670	1145	828	1218	1115	669	1657
Diseases of the Genitourinary System	1346	981	662	1218	880	1505	1381
Neoplasms	696	794	497	535	802	836	1013
Diseases of the Skin and Subcutaneous Tissue	464	1028	773	683	802	390	552
Infective and Parasitic Diseases	696	631	662	713	626	502	783
Congenital Anomalies	93	397	497	356	274	223	460
Diseases of the Blood and Blood-forming Organs	93	0	0	178	78	111	92
Total Hospitalization Rate	23804	23926	23953	24030	25266	26923	27162

^aHospitalization rate is the number of admissions per 100,000 strength per annum from 1966-1976.

^b1 = Administrative/Clerical; 2 = Electronics; 3 = Miscellaneous/Technical; 4 = Communications; 5 = Aviation; 6 = Ordnance; 7 = Mess Management Specialist; 8 = Deck and Aviation-related jobs; 9 = Electrical; 10 = Service; 11 = Engineering/Hull; 12 = Construction/Manufacturing, and 13 = Hospital Corpsman.

Table 3
Hospitalization Rates Rank-Ordered by Diagnostic Category and Occupational Group for
Navy Enlisted Men Who Entered Service in 1955-1956^a

<u>Diagnostic Category (ICDA-8)</u>	<u>Occupational Group^b</u>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Diseases of the Digestive System	1082	1297	1144	1154	1307	1493
Diseases of the Circulatory System	695	670	658	678	639	838
Accidents, Poisoning, Violence	969	1223	1098	1351	1711	1948
Diseases of the Musculoskeletal System	548	695	532	708	969	902
Diseases of the Respiratory System	787	910	905	705	1179	870
Mental Disorders	962	802	738	1026	966	1030
Symptoms and Ill-defined Conditions	372	480	432	468	589	607
Supplementary Classifications	365	362	366	430	366	423
Diseases of the Nervous System and Sense Organs	309	352	333	376	504	567
Endocrine, Nutritional, and Metabolic Diseases	190	171	166	163	220	319
Diseases of the Genitourinary System	569	719	559	499	898	671
Neoplasms	183	259	266	286	295	303
Diseases of the Skin and Subcutaneous Tissue	358	367	406	352	412	479
Infective and Parasitic Diseases	323	357	372	279	444	463
Congenital Anomalies	84	68	126	77	85	112
Diseases of the Blood and Blood-forming Organs	14	10	20	12	25	16
Total Hospitalization Rate	7810	8742	8161	8564	10609	11041

<u>Diagnostic Category (ICDA-8)</u>	<u>Occupational Group</u>						
	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Diseases of the Digestive System	1989	1498	1594	1242	1711	1369	1898
Diseases of the Circulatory System	884	960	538	858	778	888	1106
Accidents, Poisoning, Violence	2390	2583	1570	1385	2023	2072	1986
Diseases of the Musculoskeletal System	1165	1133	993	697	1087	999	1169
Diseases of the Respiratory System	904	1018	883	1081	1031	647	1521
Mental Disorders	1587	1421	1183	1108	1260	1017	1898
Symptoms and Ill-defined Conditions	924	740	601	670	562	888	1031
Supplementary Classifications	502	509	399	322	567	518	427
Diseases of the Nervous System and Sense Organs	442	432	432	411	585	425	767
Endocrine, Nutritional, and Metabolic Diseases	542	307	153	188	229	185	302
Diseases of the Genitourinary System	723	701	724	759	710	647	943
Neoplasms	362	394	288	295	330	240	427
Diseases of the Skin and Subcutaneous Tissue	944	653	484	348	624	462	465
Infective and Parasitic Diseases	522	394	368	456	443	351	616
Congenital Anomalies	80	144	74	54	98	74	151
Diseases of the Blood and Blood-forming Organs	60	58	6	72	24	92	50
Total Hospitalization Rate	13920	12945	10320	9946	12062	10874	14757

^aHospitalization rate is the number of admissions per 100,000 strength per annum for 1966-1976.

^b1 = Administrative/Clerical; 2 = Electronics; 3 = Miscellaneous/Technical; 4 = Communications; 5 = Aviation; 6 = Ordnance; 7 = Mess Management Specialist; 8 = Deck and Aviation-related jobs; 9 = Electrical; 10 = Service; 11 = Engineering/Hull; 12 = Construction/Manufacturing, and 13 = Hospital Corpsman.

high rates for Accidents, Poisoning, and Violence which also are noted for Mess Management Specialist and Construction/Manufacturing personnel. Hospitalization rates across occupational groups tend to be fairly comparable for the categories of Supplementary Classifications and Diseases of the Nervous System and Sense Organs. Occupational groups with the lowest rates for most categories are Administrative/Clerical, Miscellaneous/Technical, Communications, and Electronics.

Specific Diseases of the Mid-Life Transition Years: As noted above, the most significant increases in rates between decades are evidenced for Diseases of the Digestive System and Diseases of the Circulatory System while the largest ratio between decades is noted for Endocrine, Nutritional, and Metabolic Diseases. Specific digestive and circulatory diagnoses that account for the majority of hospitalizations include: ulcers, hernias, hypertension, and ischemic heart disease. In the diagnostic category of Diseases of the Musculoskeletal System, arthritis and slipped disc are the most frequent reasons for hospitalization whereas alcoholism represents the largest proportion of hospitalizations for Mental Disorders. Pneumonia and bronchitis are the most frequent reasons for hospitalization in the respiratory disease category, particularly among Aviation (mechanics) personnel. Hearing problems and hearing loss are high-risk conditions among Ordnance personnel. Of all the diagnoses in the category of Endocrine, Nutritional, and Metabolic Diseases, hospitalizations for diabetes mellitus occur with the greatest frequency.

Differences and Similarities in Hospitalizations by Occupation: These findings indicate that the years of the mid-life transition and the third decade of a career can be the beginning of a period of chronic health problems for many senior enlisted men serving in the Navy. Each occupational group is observed as having an increased health risk from the second to third decade of active service, and differences between cohorts in hospitalization rates are at least twofold for most groups. Several of these groups, furthermore, appear to be more vulnerable to specific diseases or clusters of diagnoses during the mid-life years.

The Hospital Corpsman group is identified as having the highest health risks of all groups, particularly for the diagnostic categories of Mental Disorders, Symptoms and Ill-defined Conditions, and Neoplasms. Men in this group, along with Ordnance and Service personnel, also have the highest rates for Diseases of the Digestive System. Such results suggest that individuals assigned to occupations classified as having responsibility for the lives or well-being of others may be more susceptible to digestive disorders than workers employed in jobs that are equipment-centered. Other researchers have reported an association between digestive disorders (as well as several other conditions) and having responsibility on the job for the well-being of others.⁹ The high hospitalization rates among Corpsmen also can be attributed to several other factors such as exposure to infectious diseases and other health hazards in the hospital environment, increased knowledge of symptomatology, a preoccupation with disease, close proximity to health care facilities, awareness of the importance of maintaining good health when caring for patients, concerns about future job opportunities, and the possibility of being more inclined than others to accept the sick role.¹⁰

Other occupational groups with elevated rates include Construction/Manufacturing, Mess Management Specialist, Electrical, Engineering/Hull, and Deck. These groups differ from others in that they have the highest rates either for Diseases of the Circulatory System or Accidents, Poisonings, and Violence or both. In comparisons across occupations, the duties of these jobs are the most physically demanding and frequently are performed under adverse environmental conditions. These men, moreover, are required to repair, maintain, and operate all types of equipment, from the most sophisticated technological marvel to a piece of antiquated machinery while ensuring that each young, inexperienced, subordinate can safely perform his or her duties. Men in these jobs also may have adopted life styles less conducive to the enhancement and maintenance of good health, a conjecture that will be tested in subsequent studies.

The lowest health risk groups include Administrative/Clerical, Miscellaneous/Technical, Electronics, and Communications. In general, these groups have the lowest hospitalization rates for almost all major diagnostic categories. When contrasted with the high-risk groups noted above, all of the tasks assigned to personnel in these specialties require little physical

strength and stamina and would be performed in environmentally protected work settings. Many specialties in these groups, moreover, have a high transferability of skills to civilian jobs and a correspondingly high demand in the job market, factors that would enhance the enlistee's self-esteem and well-being. Thus, these occupational and career considerations would tend to promote a more satisfactory adjustment to either the Navy or civilian industry.

Implications for the Navy Medical Department: Such results indicate that for many men the years of the mid-life transition are the beginning of a period when health problems require increased attention and consideration. Although many researchers would be tempted to attribute this elevated risk to the "normal aging process," it should be pointed out (and emphasized) that the human lifespan consists of a series of developmental phases which typically are devoid of disease. Chronic health problems are acquired conditions that in all likelihood are genetically predisposed, life-style promoted, or environmentally or occupationally induced.¹¹ The influence of these factors is reflected by the variability in rates reported in this study; the challenge for the Navy Medical Department will be to develop programs of risk reduction, particularly as the organization moves away from a disease orientation toward a wellness program.

Therefore, with this diversity in hospitalization rates not only between cohorts but also among occupational groups, the Navy Medical Department must anticipate how best to meet the health care needs of all personnel and how to develop intervention and prevention programs in an effort to reduce the hospitalization rates of all occupational groups, particularly those identified as high risk. Future research endeavors will be designed to examine the causal factors (e.g., environmental, organizational, and individual characteristics) associated with the high-risk groups. Wherever possible, recommendations will be made to modify or eliminate hazardous conditions or adverse characteristics. Of special concern is the need to create and implement dietary, weight reduction, smoking cessation, and physical fitness programs that ultimately will result in reductions in the relatively high rates of hypertension, ischemic heart disease, ulcers, and diabetes mellitus. Because of the high costs of human suffering, disability, and compensation, the Navy Medical Department will of necessity become increasingly involved in promoting these types of health maintenance programs, especially among naval personnel as they approach the mid-life years. To be most effective, however, these programs should become an integral part of all phases of a naval career. Additionally, the anticipated extension in the years to retirement is also likely to bring new interest and increased emphasis to these health-related problems and their possible solutions.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 81-25	2. GOVT ACCESSION NO. AD-A108995	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Health Effects of the Mid-Life Years among Navy Enlisted Men		5. TYPE OF REPORT & PERIOD COVERED Interim
7. AUTHOR(s) Anne Holberg		6. PERFORMING ORG. REPORT NUMBER
8. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Health Research Center P.O. Box 85122 San Diego, California 92138		9. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Medical Research and Development Command National Naval Medical Center Bethesda, Maryland 20014		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS M0099PN.001-1163
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Bureau of Medicine and Surgery Department of the Navy Washington, D.C. 20372		12. REPORT DATE June 1981
		13. NUMBER OF PAGES 11
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Mid-life transition Health maintenance programs Hospitalization rates Enlisted Navy cohorts Occupational comparisons		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The purpose of this article is (a) to compare the overall hospitalization rates of Navy enlisted men during a second (N = 30,393) and third decade (N = 19,471) of a Navy career (the third includes the mid-life transition years), (b) to identify high risk occupational groups, and (c) to identify specific health problems associated with the mid-life years. Results show that third decade enlistees have considerably higher hospitalization rates than the second decade cohort for 10 of the 16 major diagnostic categories; the largest differences are		

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observed for Endocrine, Metabolic, and Nutritional Diseases, Circulatory Diseases, Supplementary Classifications, and Diseases of the Digestive System. The high risk occupational groups include Hospital Corpsman, Construction/Manufacturing, and Engineering/Hull during the third decade and Hospital Corpsman, Mess Management Specialist, and Deck during the second decade. Specific diseases with relatively high rates during the mid-life years are ulcers, hypertension, ischemic heart disease, hernias, arthritis, pneumonias, bronchitis, hearing loss, and diabetes mellitus. Implications for the Navy Medical Department also are discussed.

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